F. BATTAGLIA

INTERIM REMEDIAL MEASURES (IRMS)

AT

THE

CRANSTON RCRA SITE

PRESENTED BY CIBA-GEIGY CORPORATION
APRIL 12, 1995

AGENDA

APRIL 12, 1995

CRANSTON CITY HALL

INTERIM REMEDIAL MEASURES (IRMS) AT THE CRANSTON RCRA SITE

I. Introduction - D. McIntyre, Ciba

II. Soil Removal And Groundwater Stabiliztion IRMS - B. Berdahl, Ciba And T. Marshall, PTRL

III. Voluntary Cofferdam Sediment Removal - B. Berdahl, Ciba

IV. Projected Surface And Sediment Water Quality In The Pawtuxet River - E. Garland, HydroQual

V. Schedules - USEPA And RIDEM

CIBA CRANSTON RCRA SITE

OVERVIEW OF REMEDIAL SCHEDULE

- **EPA Administrative Consent Order To Implement Stabilization (Pump And Treat) And The Building Donation To The City Are Driving Remedial Activities In The Production Area**

Remedial Activity	Duration
Remove PCB Contaminated Soil From Production Area	5/1- 6/2/95
Construct Stabilization Systems In Production Area And Building 15	5/18 - 9/29/95
Excavate Cofferdam Sediments From Pawtuxet River	10/2 - 11/10/95
Grade And Pave Production Area, Except For SVE	11/15 - 12/15/95
Operate Soil Vapor Extraction System In Production Area	9/29/95 - 1998e
Operate G.W. Extraction Wells And Pretreatment Plant	9/29/95 - 2005e

(e) Estimated Duration

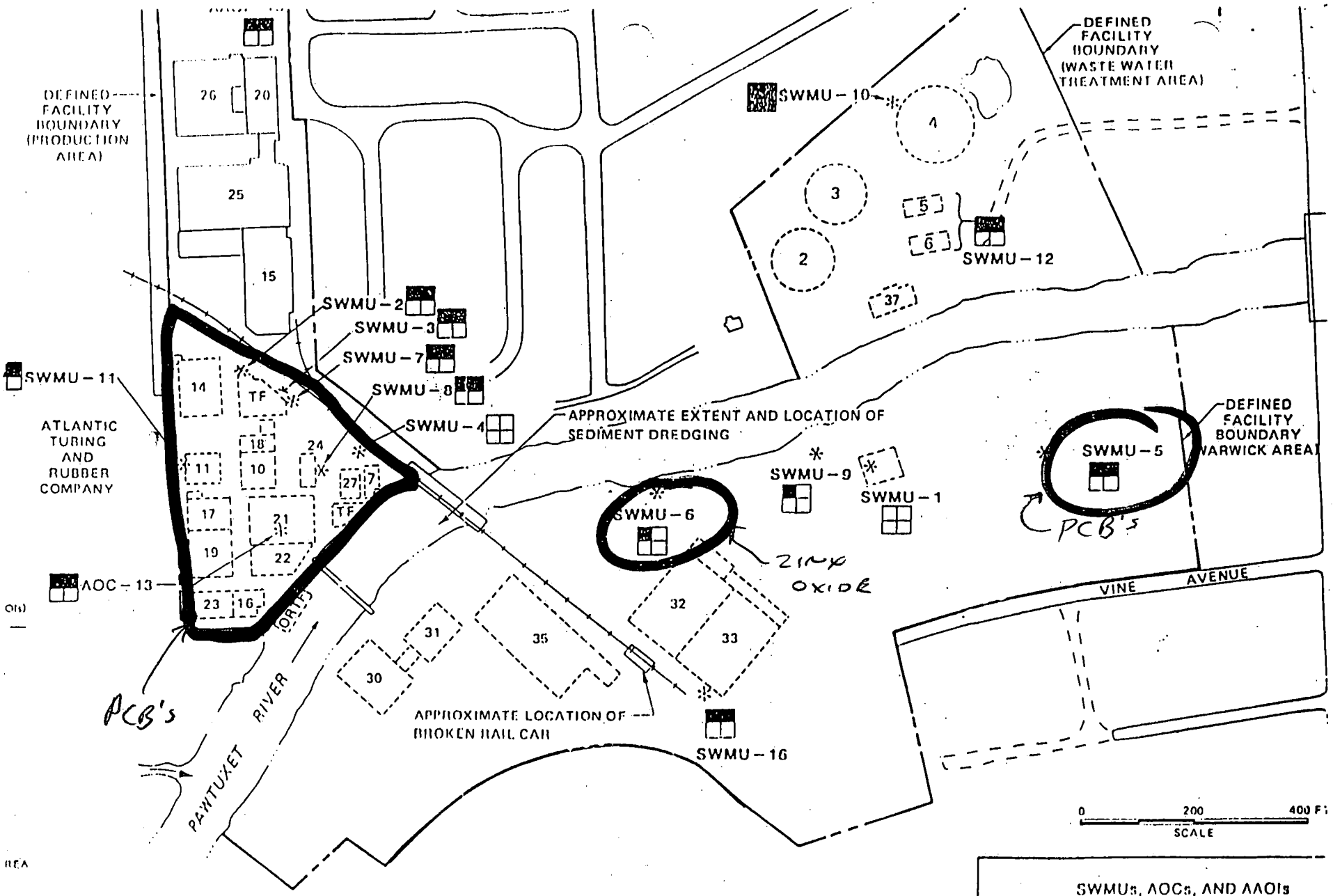
CRANSTON RCRA CLA 061

MARCH 2, 1995

PC B REMOVAL IRM

- Production Area
  - Risk Assessment 50 PPM Total PCB
  - Cleanup Level 45 PPM Total PCB (780 cu yd)
  - Commercial, Restricted Land Use
- Warwick Area (SWMU #5)
  - Risk Assessment 9 PPM Total PCB
  - Cleanup Level 1 PPM Total PCB (210 cu yd)
  - Residential, Non-Restricted Land Use
- Warwick Area (SWMU #6)
  - Non-Hazardous Zinoxide Spill
  - Qualtative Cleanup for Liability (25 cu yr)
- Disposal of All Soils
  - TSCA/RCRA Landfill- Model City (220 cu yd)
  - Reviewing Rail Transport To Southwest

SOILS TO MODEL CITY, NY



NOTES:

1. STRUCTURE LEGEND IS INCLUDED IN THE RCRA FACILITY INVESTIGATION PROPOSAL, CHAPTER 1, FIGURE 3-1.
2. CIBA-GEIGY HAS IDENTIFIED ONE ADDITIONAL AREA OF INVESTIGATION (AAOI). THIS AAOI HAS BEEN DESIGNATED AS AAOI-15.

BASE MAP SOURCE: GEOD CORPORATION OF NEWPORT/SCANIS, NEW JERSEY, MAPPED BY PHOTOGRAMMETRIC METHODS FROM AERIAL PHOTOGRAPHS. DATE FLOWN: 2 APRIL 1989

SWMUs, AOCs, AND AAOIs

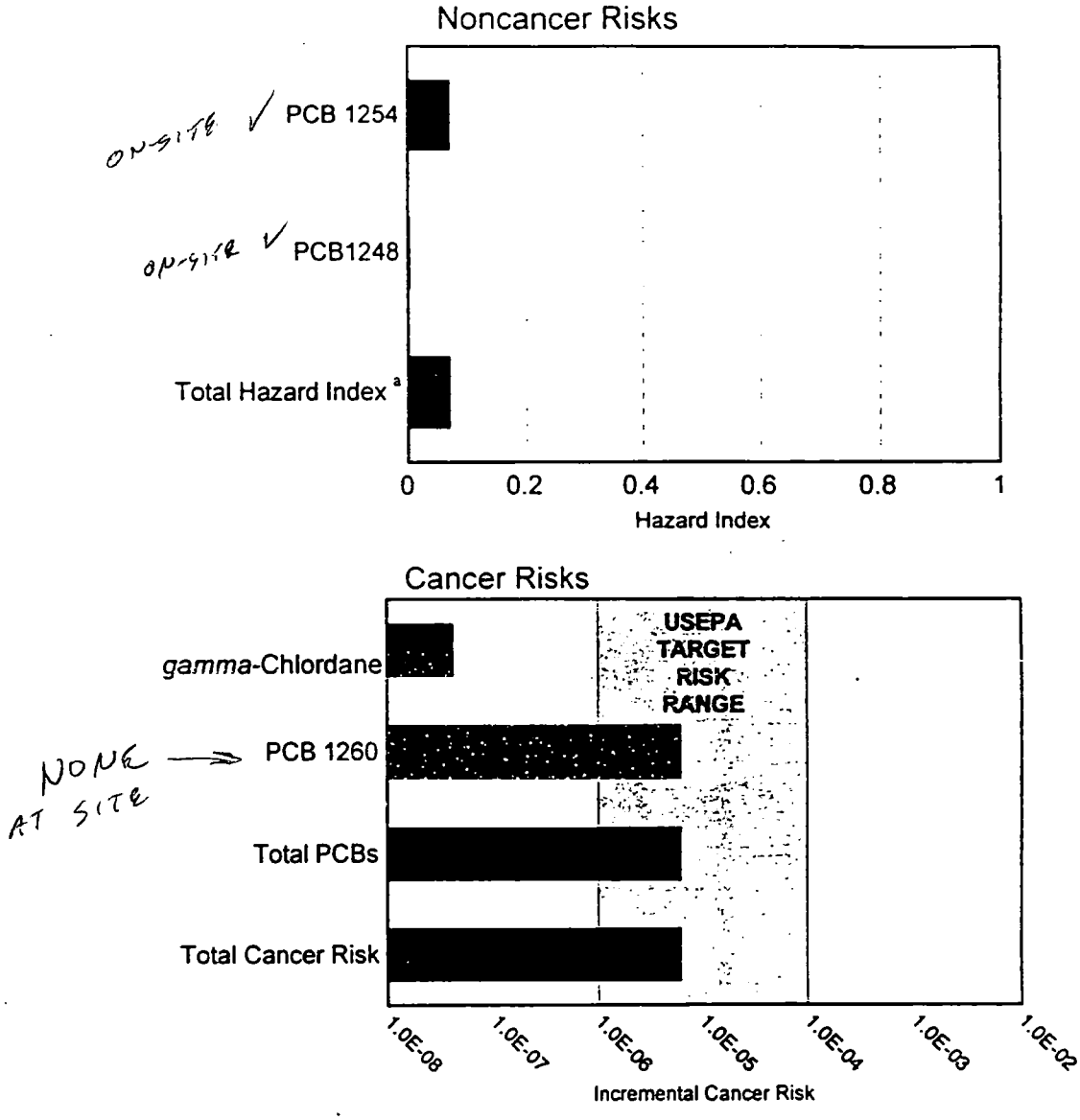
WOODWARD-CLYDE CONSULTANTS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

WAYNE, NEW JERSEY

DR. BY:	KF	SCALE:	1:2400	PROJ NO:	8
CK'D BY:	MH	DATE:	20 JAN 1992	FIG. NO	

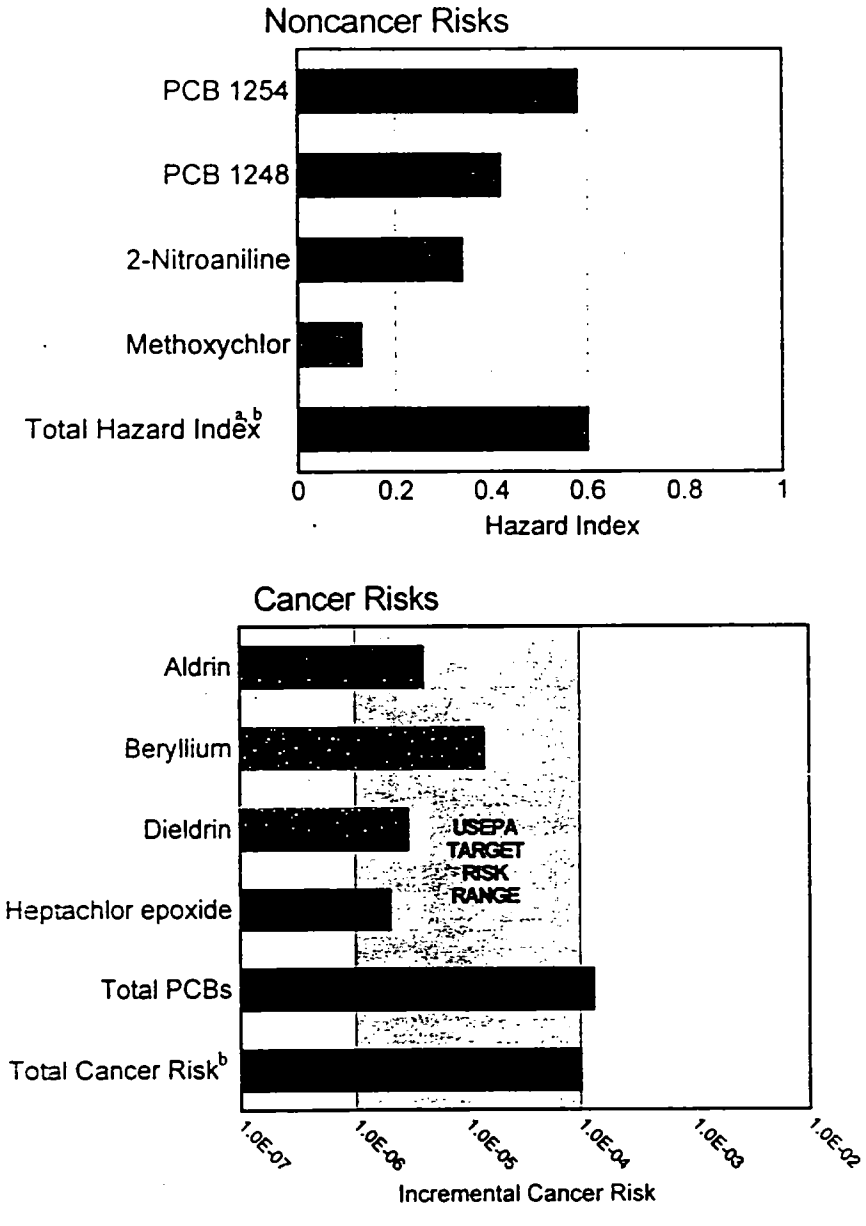
FIGURE 1



[a] Only similar hazards are summed. Refer to Appendix A, Section A7.0.

1 foot COMPACTED SOIL
6"-9" ASPHALT

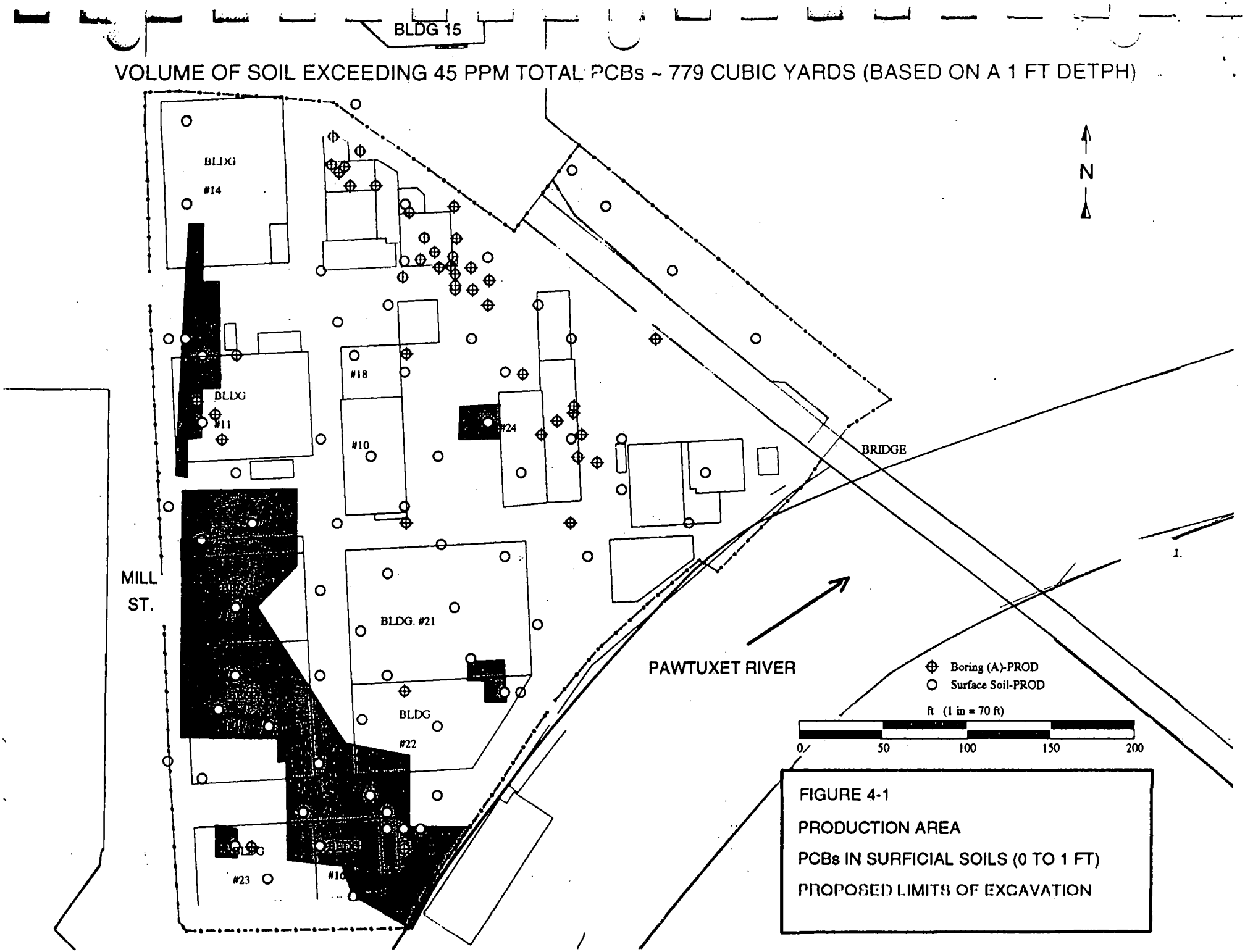
Figure 2-1. Risk Summary for Production Area On-Site Worker Scenario

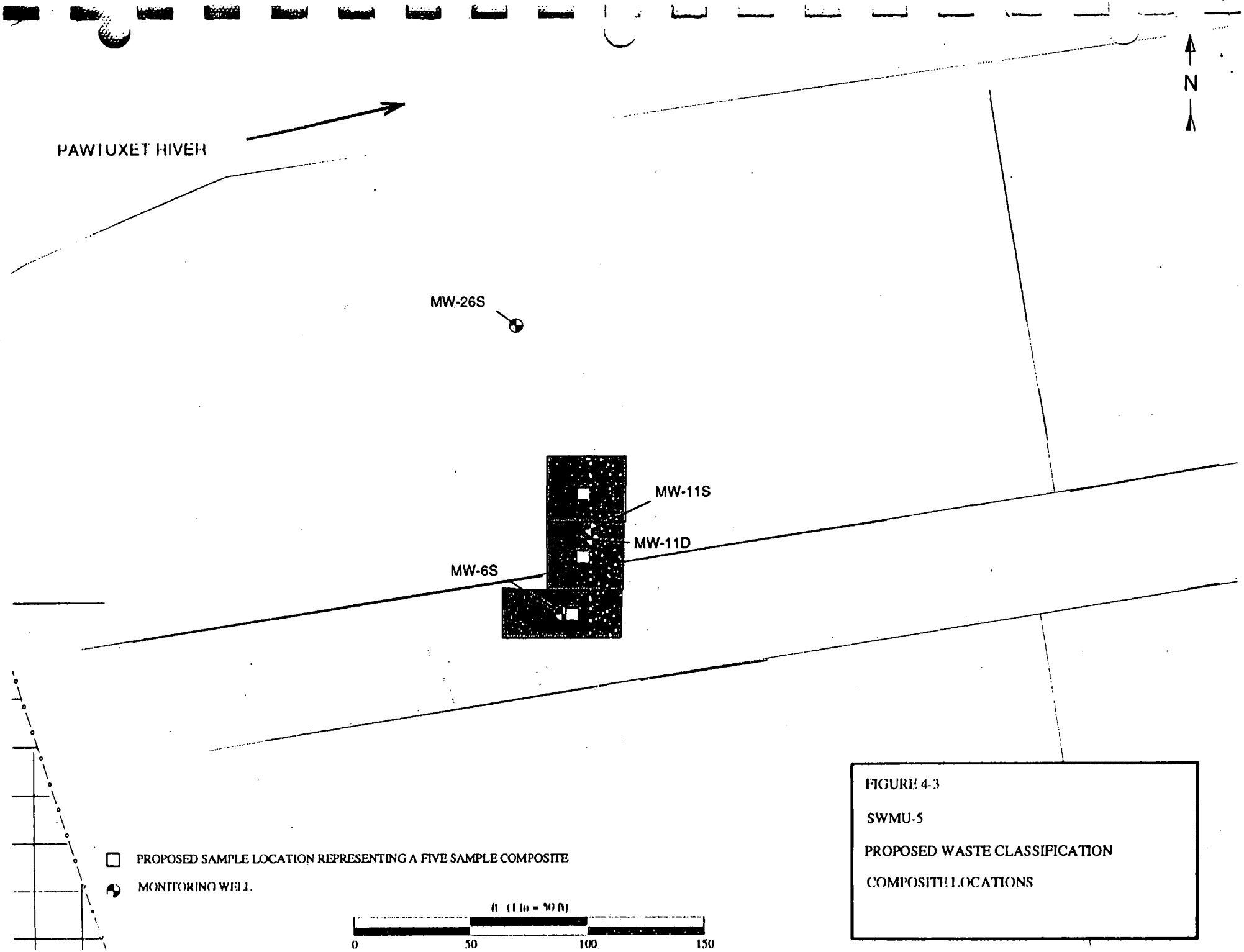


[a] Only similar hazards are summed. Refer to Appendix A, Section A7.0.

[b] Rounded to one significant figure, as recommended by the USEPA.

Figure 2-2. Risk Summary for Warwick Area On-Site Resident Scenario


BLDG 15
VOLUME OF SOIL EXCEEDING 45 PPM TOTAL PCBs ~ 779 CUBIC YARDS (BASED ON A 1 FT DETPH)
BLDG
#14
N
BLDG
#11
#18
#10
#24
BRIDGE
MILL
ST.
BLDG. #21
BLDG
#22
PAWTUXET RIVER
#23
Boring (A)-PROD
Surface Soil-PROD
ft (1 in = 70 ft)
0
50
100
150
200
FIGURE 4-1
PRODUCTION AREA
PCBs IN SURFICIAL SOILS (0 TO 1 FT)
PROPOSED LIMITS OF EXCAVATION


N
PAWTUXET RIVER
MW-26S
MW-11S
MW-11D
MW-6S
PROPOSED SAMPLE LOCATION REPRESENTING A FIVE SAMPLE COMPOSITE
MONITORING WELL
0 (1 in = 50 ft)
0
50
100
150
FIGURE 4-3
SWMU-5
PROPOSED WASTE CLASSIFICATION
COMPOSITE LOCATIONS

CRANSTON RCRA CLA 061

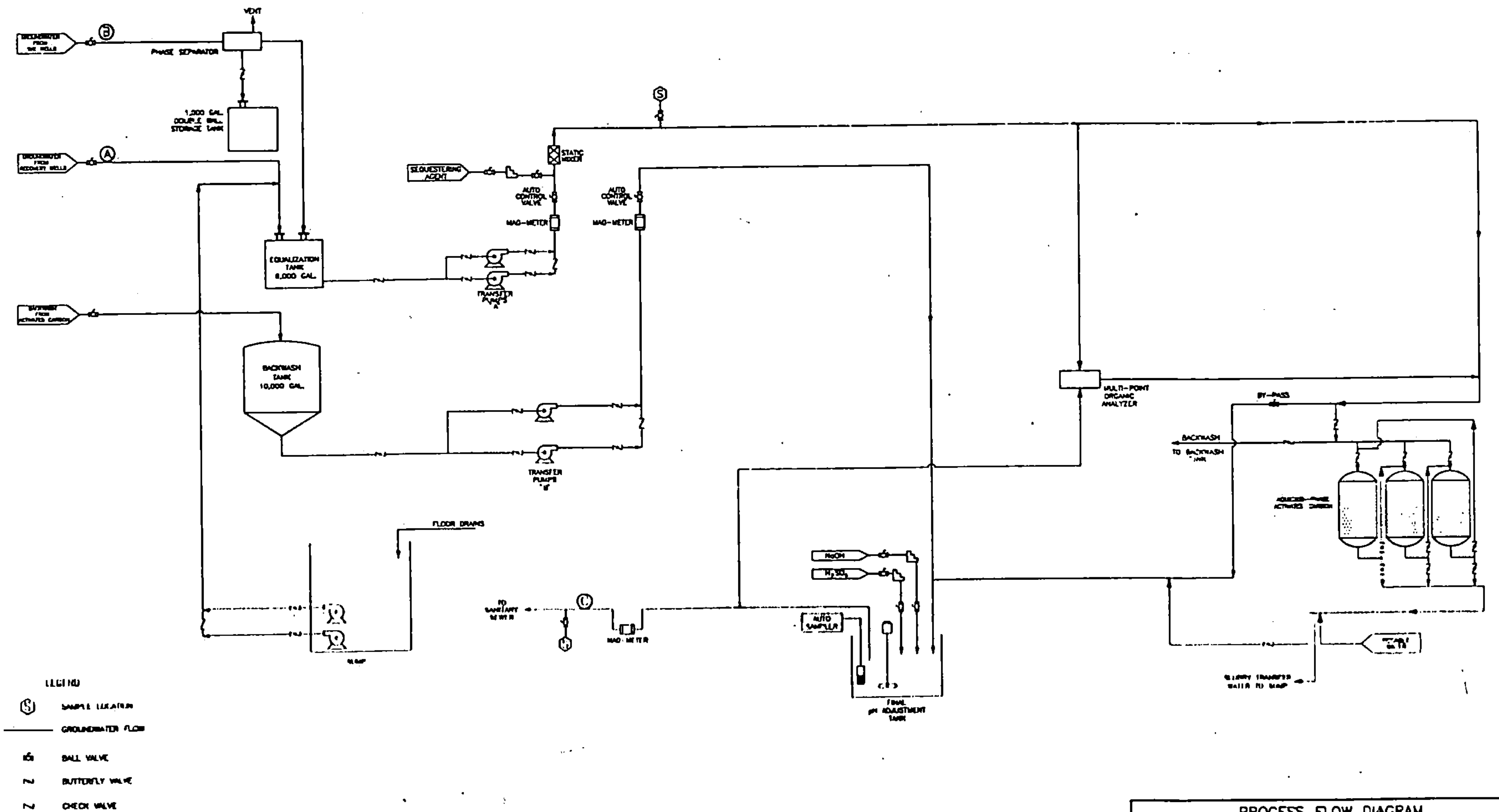
MARCH 2, 1995

STABILIZATION IRM

CITY GRANTED 1 YEAR EXTENSION OF SYSTEM CHANGES FOR H2O TREATMENT

- Resubmitted to EPA, RIDEM, and City January 30
- 11 Soil Vapor Extraction Wells (4 dual)
- 4 Groundwater Extraction Wells
- Groundwater Pretreatment Process Revised
  - Old: Metals removal, Air Stripping, GACs
  - New: Metals Sequestering and GACs
- POTW Critical Discharge Limits
  - Iron 2 PPM (increased)
  - Total Toxic Organics (TTO) 2.13 PPM
- Construction to Start April 27 with on Line Testing Sept 8

THERMAL OXIDIZER FOR VAPOR EXTRACTION

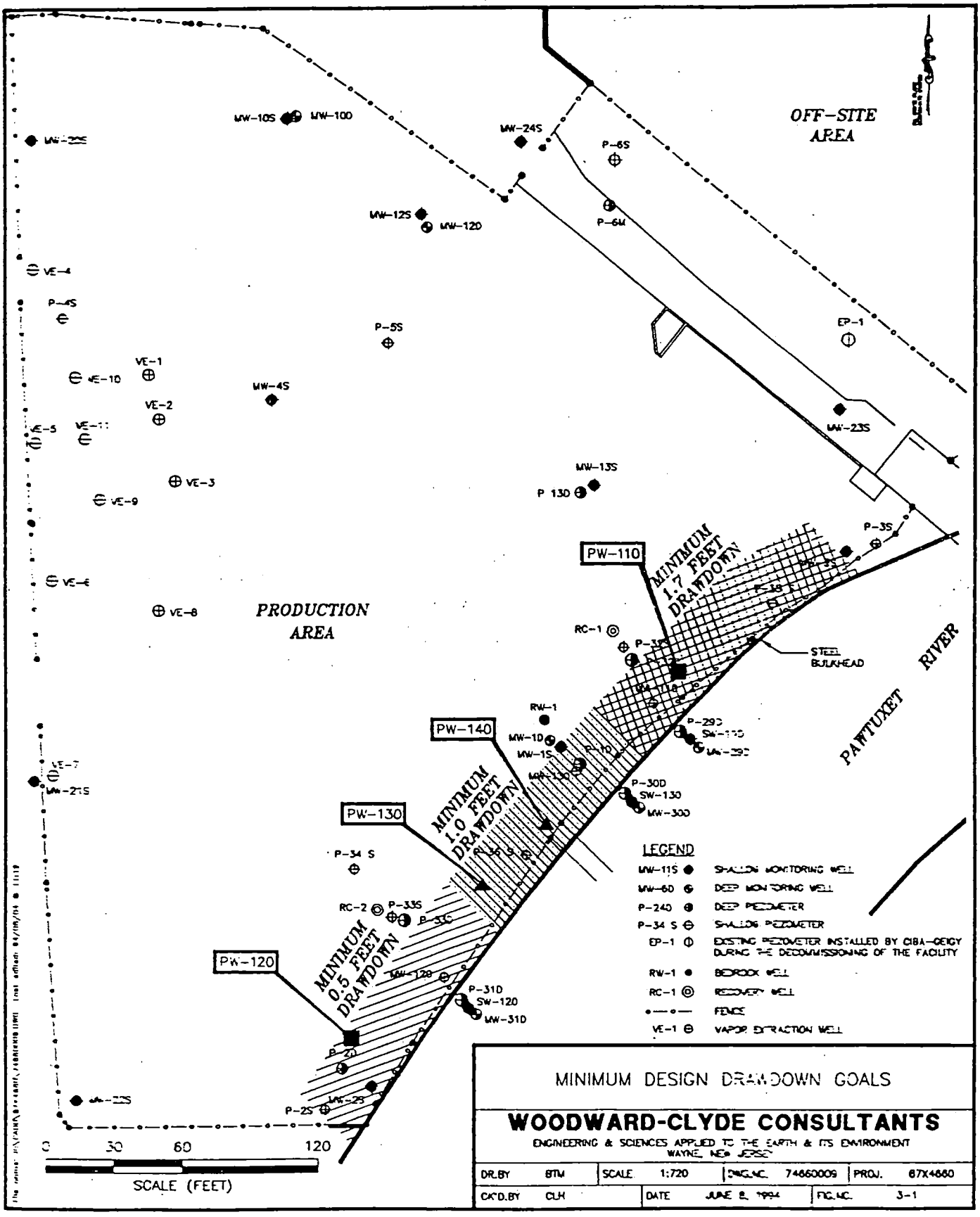


PROCESS FLOW DIAGRAM
GROUNDWATER PRETREATMENT SYSTEM
FINAL DESIGN

WOODWARD-CLYDE CONSULTANTS

ENGINEERING & SCIENCES APPLIED TO THE EARTH & ITS ENVIRONMENT

DR. BY	MVB	SCALE	AS SHOWN	DWG. NO. 74860019		PROJ. NO. 87X4860	
CK'D. BY	AJC	DATE	JAN 20, 1995	FIG. NO.	2-2		

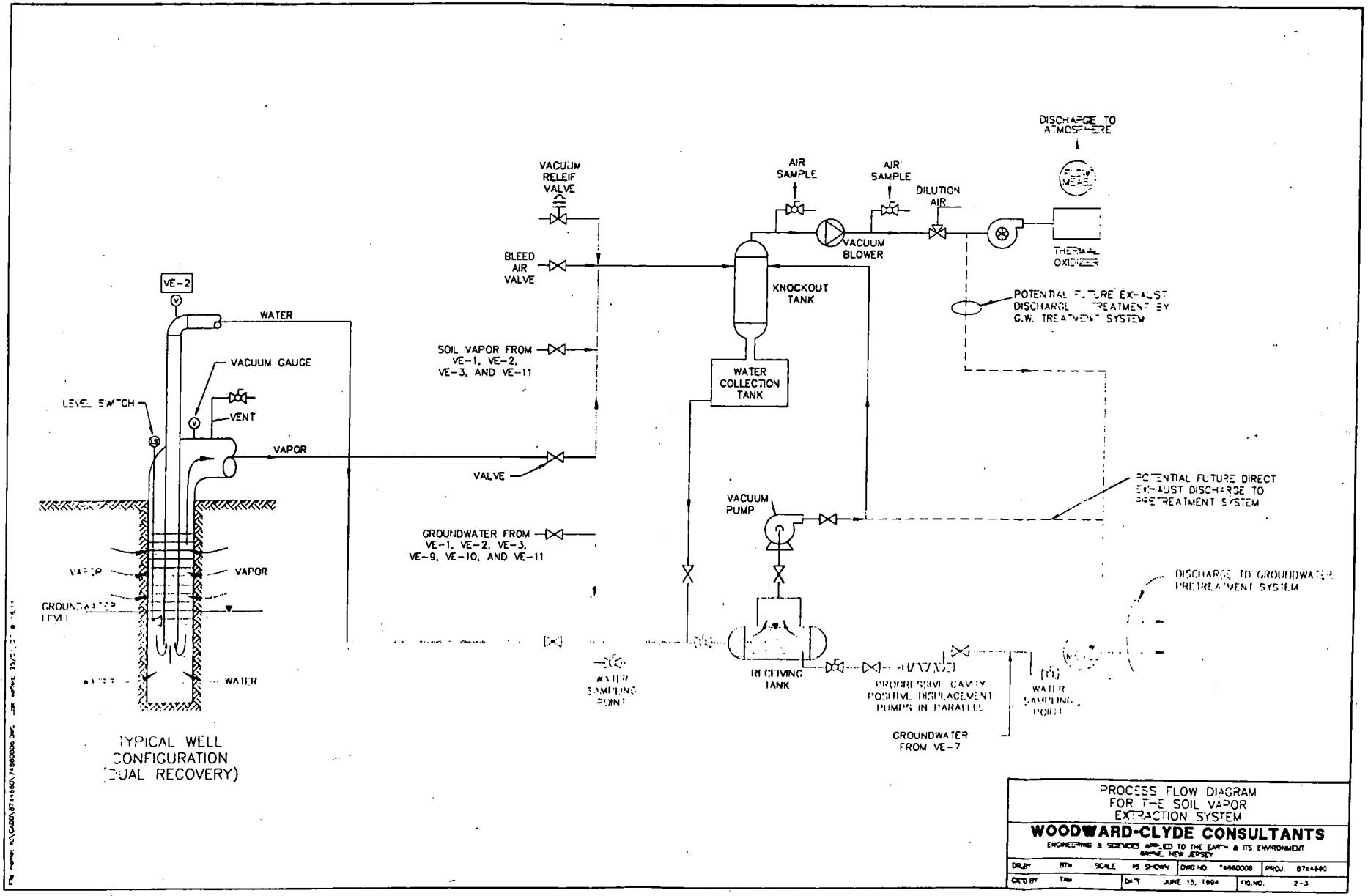


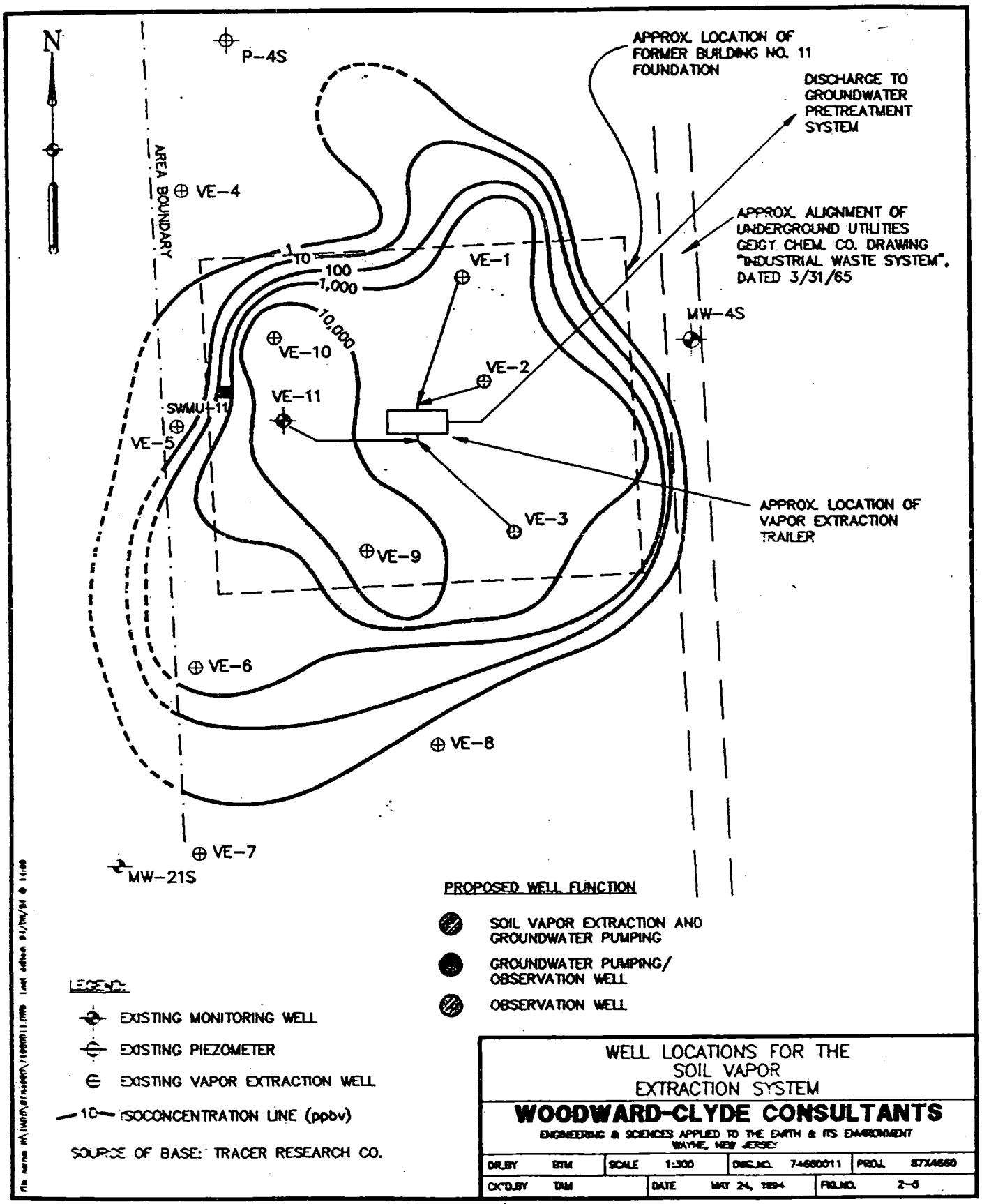
MINIMUM DESIGN DRAWDOWN GOALS

WOODWARD-CLYDE CONSULTANTS

ENGINEERING & SCIENCES APPLIED TO THE EARTH & ITS ENVIRONMENT
WAYNE, NEW JERSEY

DR.BY	BTM	SCALE	1:720	DWG.NO. 74660009	PROJ. 67X4660
CK'D.BY	CLH	DATE	JUNE 8, 1994	FIG.NO.	3-1


VE-2
WATER
VACUUM GAUGE
LEVEL SWITCH
VENT
VAPOR
VAPOR
VAPOR
GROUNDWATER LEVEL
WATER
WATER
TYPICAL WELL CONFIGURATION (DUAL RECOVERY)
VACUUM RELEIF VALVE
BLEED AIR VALVE
SOIL VAPOR FROM VE-1, VE-2, VE-3, AND VE-11
VALVE
GROUNDWATER FROM VE-1, VE-2, VE-3, VE-9, VE-10, AND VE-11
AIR SAMPLE
AIR SAMPLE
DILUTION AIR
VACUUM BLOWER
DISCHARGE TO ATMOSPHERE
THERMAL OXIDIZER
KNOCKOUT TANK
POTENTIAL FUTURE EXHAUST DISCHARGE TREATMENT BY G.W. TREATMENT SYSTEM
WATER COLLECTION TANK
VACUUM PUMP
POTENTIAL FUTURE DIRECT EXHAUST DISCHARGE TO PRETREATMENT SYSTEM
DISCHARGE TO GROUNDWATER PRETREATMENT SYSTEM
WATER SAMPLING POINT
RECEIVING TANK
PROGRESSIVE CAVITY POSITIVE DISPLACEMENT PUMPS IN PARALLEL
WATER SAMPLING POINT
GROUNDWATER FROM VE-7
PROCESS FLOW DIAGRAM FOR THE SOIL VAPOR EXTRACTION SYSTEM
WOODWARD-CLYDE CONSULTANTS
ENGINEERING & SCIENCES APPLIED TO THE EARTH & ITS ENVIRONMENT
WAYNE, NEW JERSEY
DR.BY BTH SCALE AS SHOWN DWG NO. 74660008 PROJ. 87A4660
CK'D BY TAH DATE JUNE 15, 1994 FIG.NO. 2-3



WELL LOCATIONS FOR THE SOIL VAPOR EXTRACTION SYSTEM

WOODWARD-CLYDE CONSULTANTS

ENGINEERING & SCIENCES APPLIED TO THE EARTH & ITS ENVIRONMENT
WAYNE, NEW JERSEY

DR.BY	BTM	SCALE	1:300	DWG.NO.	74680011
CK'D.BY	TAM	DATE	MAY 24, 1994	FIG.NO.	2-6

CIBA CRANSTON RCRA SITE

COFFERDAM SEDIMENT REMOVAL

- **Project Location: Pawtuxet River Adjacent To Production Area (Figure 1)**

- **Concern: River Sediments Around Former Cofferdam Are Contaminated With Organic Compounds, Including PCBs (Figure 2)**

- **Objective: To Remove These Contaminated Sediments Expeditiously Prior To Use Of The Production Area.**

- **Constraints: PCB Soil Removal And Stabilization Systems Must Be Completed In The Production Area First.**

- **Approach: Sheet Pile 50' x 145' Area, Excavate to 6', And Remove 1600 CY Of Contaminated Sediment (Figure 3)**

- **Treatment And Disposal: Produce Dry Sediment "Cake" For Offsite Landfilling As Non-Hazardous Waste And Pretreat Wastewater For Discharge To POTW.**

- **Regulatory Mechanism: Voluntary Interim Remedial Measure (IRM) Performed By Ciba.**

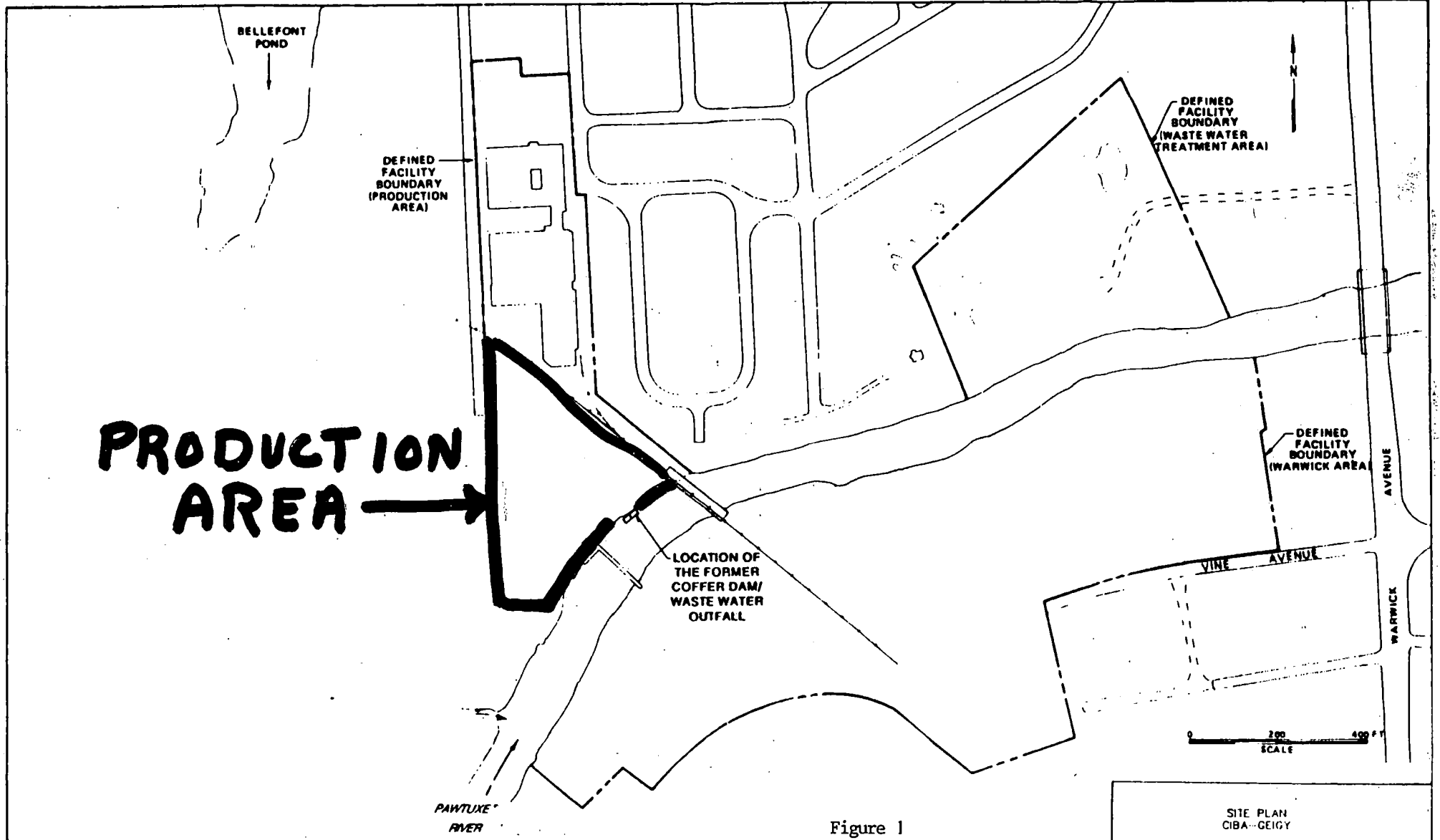


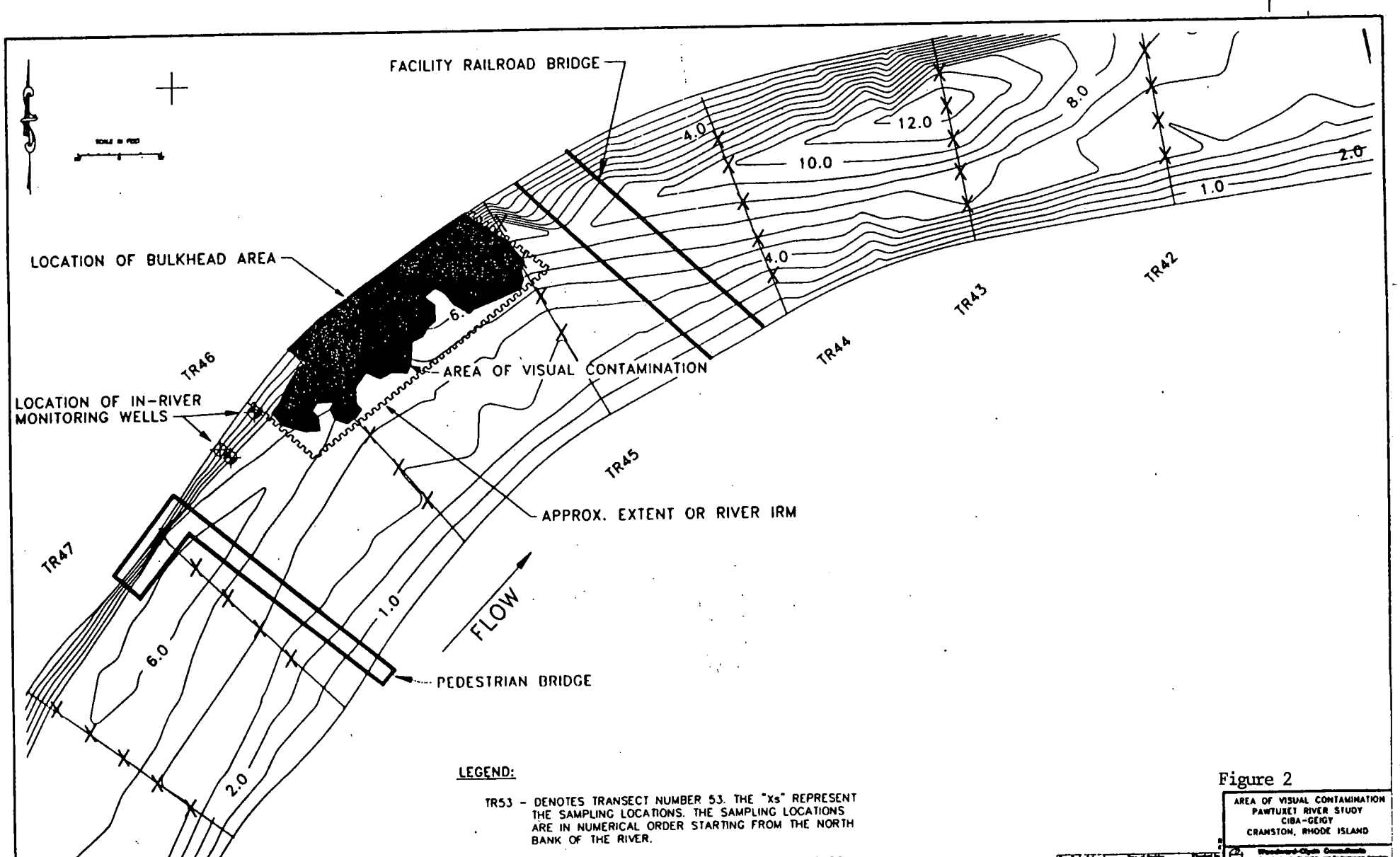
Figure 1

SITE PLAN
CIBA-GEIGY

WOODWARD - CLYDE CONSULTANTS

NOTE:
LOCATIONS SHOWN ARE APPROXIMATE

BASE MAP SOURCE:
GEOD CORPORATION OF NEWFOUNDLAND, NEW JERSEY
MAPPED BY PHOTOGRAMMETRIC METHODS FROM AERIAL



LEGEND:

TR53 - DENOTES TRANSECT NUMBER 53. THE "Xs" REPRESENT THE SAMPLING LOCATIONS. THE SAMPLING LOCATIONS ARE IN NUMERICAL ORDER STARTING FROM THE NORTH BANK OF THE RIVER.

⊕ - SURVEY CONTROL POINTS. (WATER DEPTH CONTOURS ARE IN 1.0 FOOT INTERVALS).

Figure 2

AREA OF VISUAL CONTAMINATION
PAWTUXET RIVER STUDY
CIBA-GEIGY
CRANSTON, RHODE ISLAND

EXCAVATION DEIGN FOR IRM

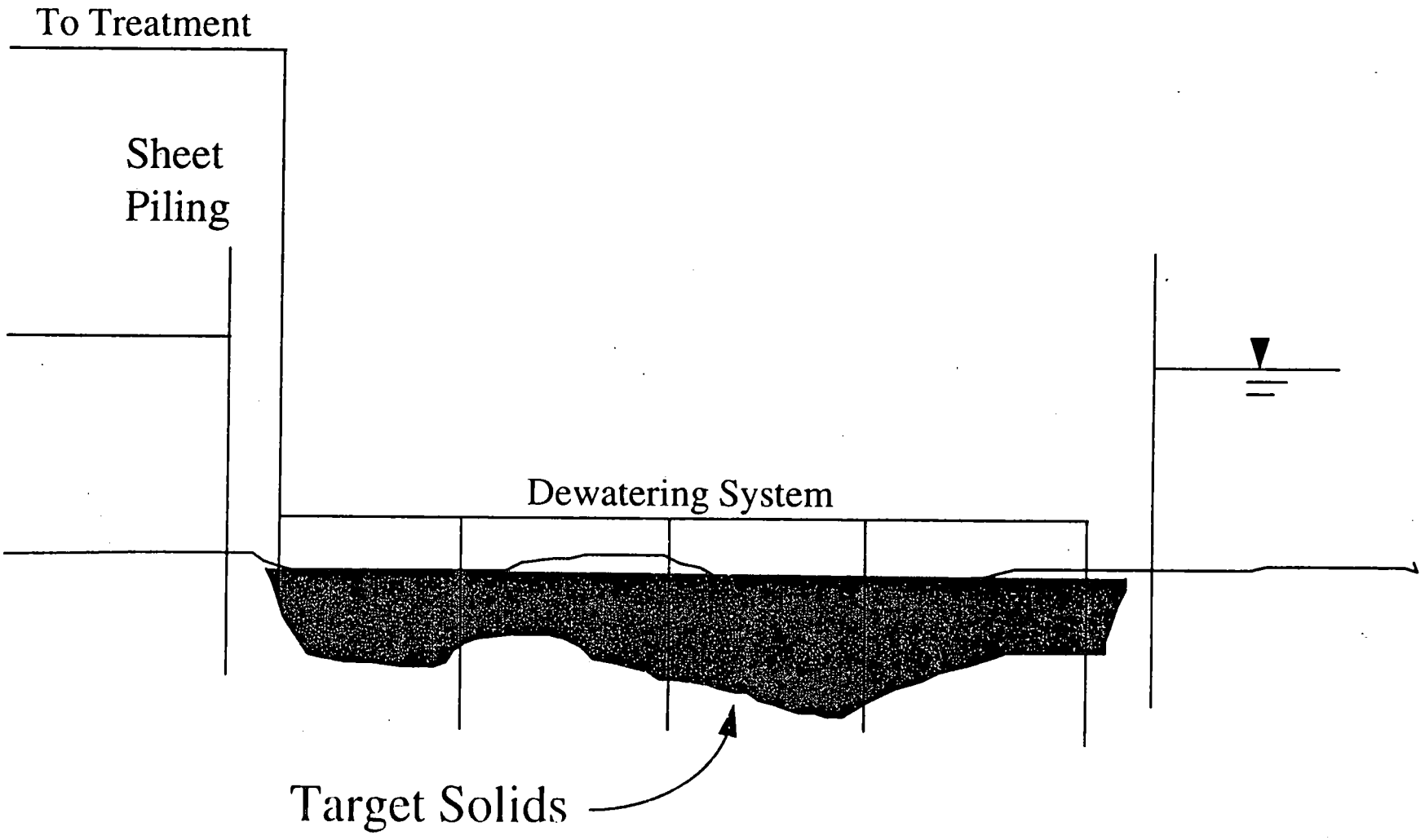


Figure 3

CIBA CRANSTON RCRA SITE

COFFERDAM SEDIMENT REMOVAL (CONTINUED)

- **Construction And Operation Of Removal Area (Figure 4)**
  - ✓ - **Contain With Silt Curtains And Sheet Piling**
  - / - **Dewater To Expose Sediments For Removal**
  - ✓ - **Excavate Sediments for Immediate Processing** REMOVED DAILY!
  - ✓ - **Provide For Odor Control In Removal Area**
  - ✓ - **Measure Turbidity Upstream And Downstream**
  - ✓ - **Backfill With Certified And Impermeable Soil**
- **Processing And Disposal Of Sediments (Figure 4)**
  - ✓ - **Enclose Processing Area To Control Odors**
  - ✓ - **Mix And Solidify Sediments To Produce Dry "Cake"** WITH WHAT?
  - ✓ - **Sample Air For Volatile Organic Compounds**
  - ✓ - **Truck (2-5/Day) Off-Site To RCRA/PCB Landfill**
- **Wastewater Treatment Of Liquids (Figure 4)**
  - ✓ - **Pretreat With Portable Units To POTW Standards**
  - ✓ - **Discharge To POTW For Final Treatment**
- **Ciba Supervisors With Health And Safety Training On-Site At All Times**

Woodward-Clyde Consultants

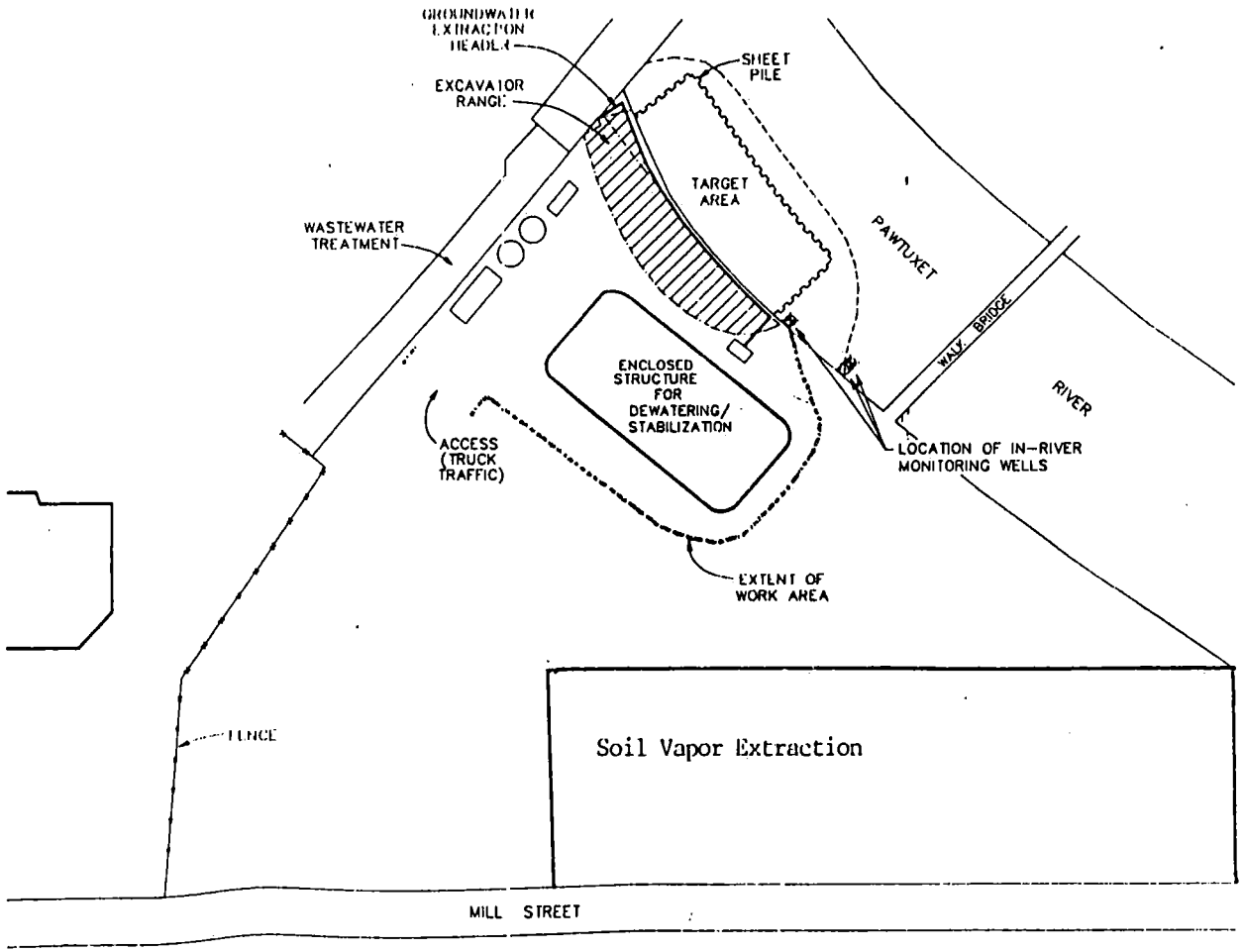


Figure 4

SCALE IN FEET

0 60'

Job No 87-1880-15.01

Prepared by: JC

Date: 03/28/1995

GENERALIZED LAYOUT OF WORK AREAS RIVER BOM

G:\ACAD\T-76800600

CIBA CRANSTON RCRA SITE

COFFERDAM SEDIMENT REMOVAL (CONTINUED)

- **Army Corps Of Engineers (ACOE) Individual Permit Requires 18 Months Review And Approval**

- **Nationwide ACOE General Permit #38 For Cleanups Takes Only 30 Days And Notification**

  - **Sponsored By Governmental Agency** – RIDEM of wetlands

  - **Submit Project Description And Effects**

  - **Implement Within Existing ACOE Rules** – General dredging requirements which limit impacts on wetlands

- **401 Water Quality Certification From RIDEM On Effects Of Removal And Planned Disposal**

- **Freshwater Wetlands Permit From RIDEM For Working In Production Area And Pawtuxet River**

- **Local Permits From The City Of Cranston**

  - **Temporary POTW Discharge Permit**

  - **Soil Erosion And Sediment Control Plan**

  - **Building Permit And Site Plan Approvals**

- **EPA Continues In Overview Role**

CRANSTON RCRA CLA 61

MARCH 27, 1995

MILE STONES

• CITY OPINION LEADERS MEETING	MARCH 22, 1995
• EPA MEETING ON SCHEDULE AND RIVER WARWICK MTG - (@ED)	APRIL 12, 1995 4-19-95
• RIVER IRM SUBMITTED TO EPA OPERATIONS PLAN TO BE SUBMITTED TO WETLANDS	APRIL 28, 1995
• PCB SOIL REMOVAL STARTS	MAY 2, 1995
— • SITE RFI REPORT SUBMITTED TO EPA MEDIA PROT. STD	JUNE 30, 1995
— • SITE CMS REPORT SUBMITTED TO EPA	SEPT. 22, 1995
— • STABILIZATION SYSTEMS START UP	SEPT. 29, 1995
How long? — • SEDIMENT EXCAVATION STARTS	OCTOBER 2, 1995
? • RIVER RFI SUBMITTED TO EPA MEDIA PROT. STD	MARCH 29, 1996
? • RIVER CMS SUBMITTED TO EPA	JUNE 29, 1996

MAY TAKE 3m → 12m TO COMPLETE DECISIONS AT SITE BY EPA?